

P. hanumantharaoi sp. nov.*P. Pecinicola* Burger

1. Host-Pecten pleuronectes.
2. Breadth and length of carapace 10 & 9 mm respectively
3. Carapace subcircular, convex
4. Eyes pale brown
5. Fingers of chelipeds half the length of hand
6. Second pair of walking legs longer than remaining pairs
7. All segments of walking not of equal length.
8. Hairs present along with inner border of merusischium and outer border of carpus of third maxilliped.

- Host-Pecten radula.
 Breadth and length of carapace 8 & 7 mm respectively.
 Carapace almost rectangular, more or less flat.
 Eyes lack pigment.
 Fingers of chelipeds as long as those of hand.
 Middle two pairs of walking legs longer than others.
 All segments of walking legs of equal length.
 In the diagram given by Burger (1985), hairs are not seen on inner border of merusischium and outer border of carpus.

REFERENCES

- ALCOCK, A. (1900): Materials for a carcinological Fauna of India. No. 6. The Brachyura Catometopa, or Grapsoida. *Jour. As. Soc. Bengal*, 19, No. III, pp. 279-456.
- BURGER, O. (1895): Ein Beitrag sur Kenntniss der Pinnotherinen. *Zool-Jahrb. Syst.* 8: 361-390.
- CHHAPGAR, B.F. (1957): Marine crabs of Bombay State. *J. Bombay nat. Hist. Soc.* 54(3): 503-549.
- HORNELL, JAMES & SOUTHWELL, T. (1909): Description of a new species of *Pinnotheres* from *Placuna placenta* with a note on the genus. Report on the Marine Zoology of Okhamandal in Kattiawar, Pt. 1, pp. 99-103.
- MIERS, E.J. (1886): Report on the Brachyura collected by H.M.S. *Challenger* during the years 1873-1876. *Rep. Voy. "Challenger"*, *Zool.*, (17): 2: 1-362.
- NOBILI, G. (1906): "Fanne Carcinologique de la Mer Rouge, Decapodes et Stomatopodes". *Ann. Sci. Nat. Zool.* 4: 1-347.
- PILLAI, N.K. (1951): Decapoda (Brachyura) from Travancore. *Bull. central Research Institute, University of Travancore, Trivandrum*, ii, No. 1 Ser. C: 1-46.
- RATHBUN, M.J. (1910): The Danish expedition to Siam 1899-1900. V. Brachyura. *K. Danske. Vidensk. Selsk. Skrift.* 5 (4): 30-368.
- TESCH, J.J. (1918): Die Decapoda Brachyura Der Siboga-Expedition. Goneplacidae and Pinnotheridae. *Siboga Exped. Rep.* xxxixci: 149-295.

ON SOME RARE SPIDERS OF THE FAMILY ZODARIIDAE (ARANEAE : ARACHNIDA) FROM COASTAL ANDHRA PRADESH, INDIA¹

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(With two text-figures)

The family Zodariidae, genus *Storena* and *S. gujaratensis* Tikader and Patel and *S. indica* Tikader and Patel are recorded for the first time from Coastal Andhra Pradesh. Two new species *S. arakuensis* and *S. tikaderi* are described and illustrated.

INTRODUCTION

The spiders of the family Zodariidae are very little known from India. Simon (1893) first recorded the family from Indian sub-continent. Later Pocock (1901), Simon (1905, 1906), Gravely (1921) and Reimoser (1934) described few more species of the family from India. Recently Tikader and Patel (1975) and Tikader and Malhotra (1976) described some new species of the genera *Storena* and *Lutica*

from India. In all sixteen species belonging to seven genera are known from our country.

While examining the spider collections from Coastal Andhra Pradesh, we came across four species of spiders of this family, out of which two are the new species which are described in this paper. The family, genus *Storena* and *S. gujaratensis* and *S. indica* are all recorded for the first time from Coastal Andhra Pradesh. These spiders are found under stones or dead leaves on the ground.

All the type specimens will in due course be deposited in the National Collections, Zoological Survey of India, Calcutta.

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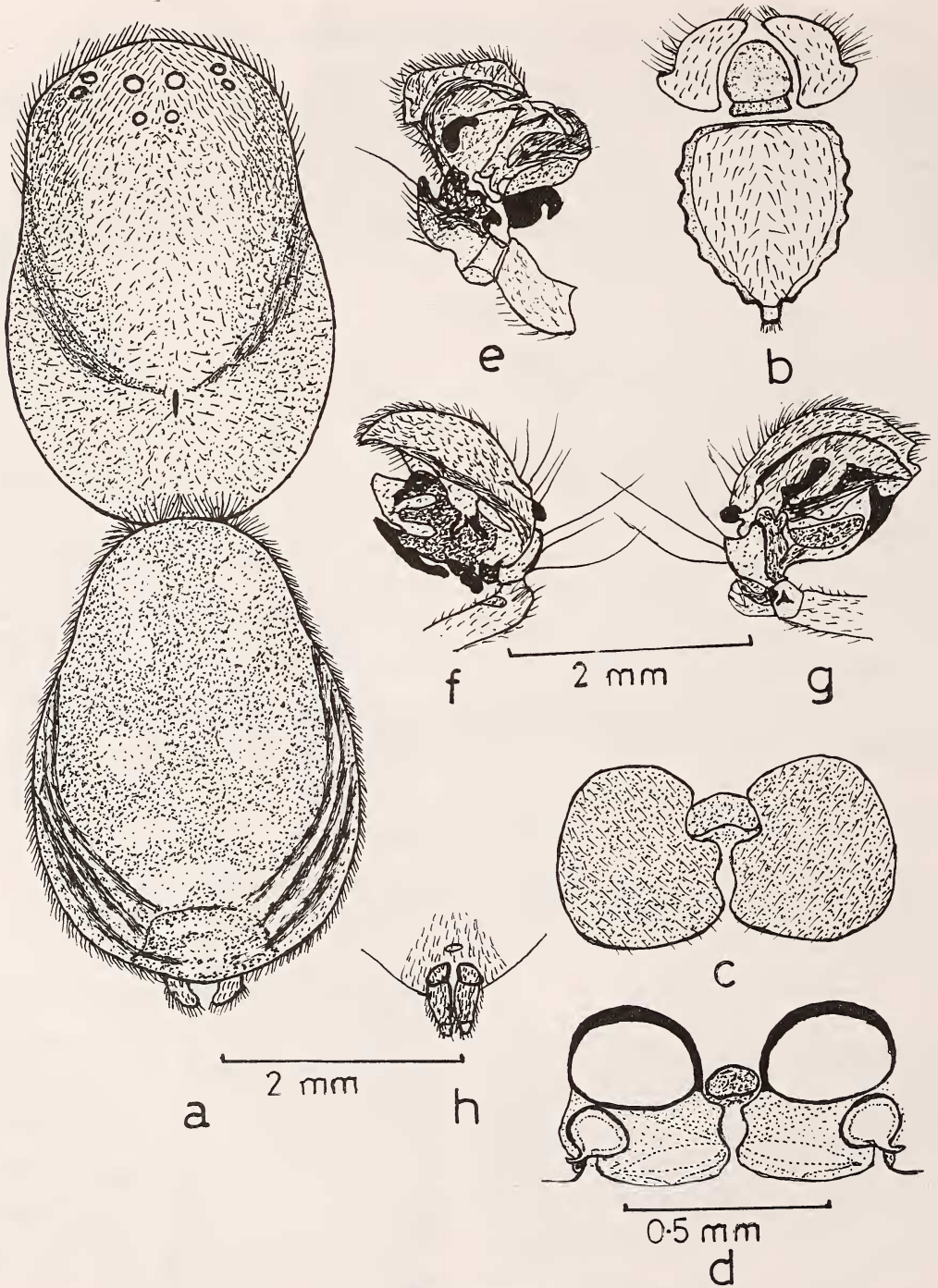


Fig. 1. *Storena arakuensis* sp. nov.

a. Dorsal view of female, legs omitted; b. Sternum, labium and maxillae; c. Epigyne; d. Internal genitalia; e. Right male palp, ventral view; f. Right male palp inner view; g. Right male palp, outer view; h. Spinnerets.

1. *Storena gujaratensis* Tikader and Patel 1975.

Storena gujaratensis Tikader and Patel, *Bull. Brit. Arach. Soc.*, 3 (5): 138.

Specimens examined: 2 Males, Nellore, Dist. Nellore, 13-9-1986; 1 female, Simhachalam, 7-10-1986, and 1 female Borraguhalu, 17-10-1986, Dist. Visakhapatnam, Coll. T.S. Reddy.

Distribution: INDIA: Napad, Gujarat; Nellore and Visakhapatnam Dists., Andhra Pradesh.

2. *Storena indica* Tikader and Patel 1975.

Storena indica Tikader and Patel, *Bull. Brit. Arach. Soc.*, 3 (5): 137-138.

Specimens examined: 1 Female, Draksharama, Ramachandrapuram, Dist. East Godavari, 7-9-1986. Coll. T.S. Reddy.

Distribution: INDIA: Pavagadh, Vallabh Vidyanagar, Gujarat; East Godavari, Dist. Andhra Pradesh.

3. *Storena arakuensis* sp. nov. (Fig. 1)

General: Cephalothorax reddish brown, legs yellowish, abdomen brown. Total length 7.13 mm. Carpace 3.63 mm long, 2.45 mm wide; abdomen 3.50 mm long, 2.45 mm wide.

Cephalothorax: Longer than wide, slightly narrowing in front, anterior margin round and smooth; middle of cephalothorax provided with a conspicuous fovea. Eyes pearly white, in two rows; both rows procurved but posterior row strongly procurved with equal eyes. Anterior median eyes larger than the others, lateral eyes nearly contiguous. Posterior median eyes closer to each other than to the laterals. Ocular quad longer than wide, slightly wider behind than in front as in Fig. 1.a. Sternum heart shaped, pointed behind, clothed with fine hairs, labium longer than wide. Maxillae provided with a tuft of scopulae at the distal end. Sternum, labium and maxillae as in Fig. 1.b. Chelicerae strong and stout, short, fang groove with a small tooth on each of the two margins. Legs long and strong, clothed with hairs and spines. Tibiae and metatarsus of all legs with three pairs of ventral spines. Tarsal claws three, the median one being very small. Leg formula 4 1 2 3. Male is similar and practically of the same size of female. Total length 6.66 mm. Male

palp as in Fig. 1. f and g.

Abdomen: Oval, longer than wide, pointed behind, clothed with fine hairs. Anterior dorsal side of abdomen provided with three pairs of conspicuous white patches and posterior end with two inconspicuous white transverse markings and with three corrugations on posterior lateral sides as in Fig. 1.a. Ventral side pale with two longitudinal brown markings. The anterior spinnerets are long and the other two pairs are comparatively short as in Fig. 1.h. Epigyne and internal genitalia as in Fig. 1.c and d.

Holotype: One female, *paratype* two females, *Allotype* three males in spirit.

Type-locality: Araku valley, Araku, Dist. Visakhapatnam, 28-9-1985. Coll. T.S. Reddy.

Diagnosis: This species resembles to *Storena indica* Tikader and Patel but it is separated as follows: (i) Anterior dorsal side of abdomen provided with three pairs of irregular and posteriorly two median irregular conspicuous white patches but in *S. indica* anterior dorsal side of abdomen with two pairs of oblong and posteriorly three median conspicuous white patches present. (ii) Epigyne and internal genitalia are also structurally different. (iii) The structure of male palp is differs.

4. *Storena tikaderi* sp. nov. (Fig. 2)

General: Cephalothorax and legs reddish brown, abdomen dark brown. Total length 6.53 mm. Carapace 2.72 mm long, 1.90 mm wide; abdomen 3.81 mm long, 2.45 mm wide.

Cephalothorax: Longer than wide, slightly narrowing in front, anterior margin round and smooth, practically without hairs except for a few spine like hairs on the cephalic region. Middle of cephalothorax provided with a conspicuous fovea. Eyes pearly white, in two rows; both rows procurved and with eyes equal in size. Anterior median eyes larger than the others, laterals nearly contiguous. Posterior median eyes closer to each other than to the laterals. Ocular quad as long as wide, slightly wider behind than in front as in Fig. 2.a. Sternum heartshaped, pointed behind, clothed with hairs. Labium longer than wide reddish, brown. Maxillae roundish, distal end light yellow in colour. Sternum, labium and maxillae as in Fig. 2.b. Chelicerae stout and short, fang groove with a single small tooth on each of the two margins. Legs long and clothed with

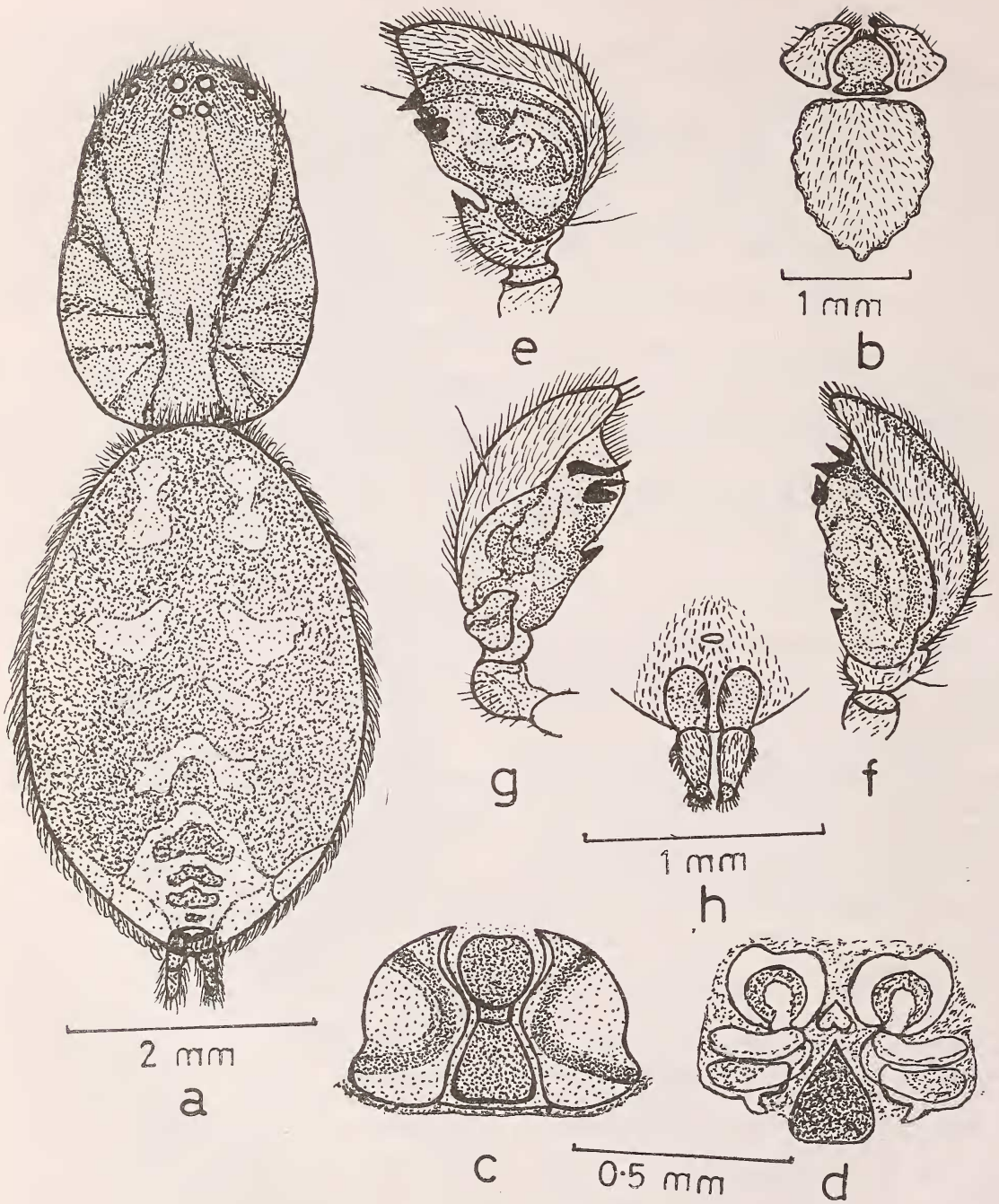


Fig. 2. *Storena tikaderi* sp. nov.

a. Dorsal view of female, legs omitted; b. Sternum, labium and maxillae; c. Epigyne; d. Internal genitalia; e. Right male palp ventral view; f. Right male palp inner view; g. Right male palp outer view; h. Spinnerets.

hairs and spines. Tibiae and metatarsus of legs I and II with three pairs of ventral spines. Tarsal claws three, the median one being very small. Leg formula 4 1 2 3. Male is similar but smaller than the female. Total length 5.35 mm. Male palp as in Fig. 2. e, f and g.

Abdomen: Oval, longer than wide, pointed behind, clothed with fine hairs. Anterior dorsal side of abdomen provided with three pairs of conspicuous white patches and posterior end with more than two pairs of inconspicuous white transverse markings as in Fig. 2.a. Ventral side pale in colour with two longitudinal deep brown markings. The anterior spinnerets are long and the other two pairs are comparatively shorter as in Fig. 2.h. Epigyne and internal genitalia are as in Fig. 2.c and d.

Holotype: One Female, *paratype* six Females, *allotype* one Male in spirit.

Type-locality: Araku valley, Araku, Dist. Visakhapatnam, 18-10-1986. Coll. T.S. Reddy.

Distribution: 2 Females, 1 Male, Tadikalapudi, Dist. West Godavari, 1-9-1985; 1 Female, Narasaraopeta, Dist. Guntur, 20-3-1986 and 1

Female, Vellatur, Dist. Guntur, 24-3-1986; 1 Female, Borraguhalu, Dist. Visakhapatnam, 17-10-1986.

Diagnosis: This species resembles to *Storena arakuensis* sp. nov. but it is separated as follows: (i) The posterior cephalothorax is provided with radiating cephalic furrows but in *Storena arakuensis* sp. nov. only the cephalic groove present. (ii) The posterior dorsal side of abdomen is provided with irregular white patch but in *S. arakuensis* sp. nov. posterior dorsal side of abdomen is provided with different type of irregular white patch and also with three corrugations on posterior lateral sides. (iii) The structures of epigyne and internal genitalia are different. (iv) Structure of male palp is also different.

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REFERENCES

- COMSTOCK, J.H. (1965): The Spider Book. rev. W.J. Gertsch: 336-338.
- GRAVELY, F.H. (1921): The spiders and scorpions of Barkuda Island. *Rec. Ind. Mus.*, 22 : 400-421.
- POCOCK, R.I. (1900): The Fauna of British India, Arachnida London, pp. 153-279.
- (1901): Description of some new species of spiders from British India. *J. Bombay nat. Hist. Soc.*, 13 : 498.
- SIMON, E. (1893): Histoire naturelle des Araignees, Paris. 1 (2): 408-439.
- (1893): Arachnides in Voyage de M. Simon aux Iles Philippines. *Annls. Soc. ent. France* 62 : 79.
- (1905): Voyage de M. Maurice Maindron dans l'Inde Meridional, Arachnides. *Annls. Soc. ent. Fr.*, 74 : 160-180.
- (1906): Voyage de M. Maurice Maindron dans l'Inde Meridional, arachnides. *Annls. Soc. ent. Fr.*, 75 : 279-305.
- THORELL, T. (1895): Spiders of Burma. London. pp. 75-76.
- TIKADER, B.K. & PATEL, B.H. (1975): Studies on some rare spiders of the family Zodariidae from India. *Bull. Brit. Arach. Soc.*, 3 (5): 137-139.
- & MALHOTRA, M.S. (1976): A new species of spider of the genus *Lutica* (Family Zodariidae) from India. *J. Bombay nat. Hist. Soc.*, 72 (3): 794-796.